

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

By way of this Amendment, Claim 15 is cancelled. Thus, the claims currently pending in this application are Claims 13, 14 and 16-32. Claims 13 and 14 are the only independent claims.

As explained in the prior response, the subject matter of this application pertains to an on-vehicle radio device that acquires identification information for unlocking a vehicle lock device. The identification information is acquired through radio communication with a portable radio device in which is recorded the identification information.

As set forth in independent Claim 13, the on-vehicle radio device comprises human detection means for detecting a person, variable frequency signal generating means for generating a variable frequency signal for the radio communication, band changing means for changing the frequency band of the signal generated by the variable frequency signal generating means, radio transmitting means for transmitting the signal generated by the variable frequency signal generating means to outer space, and transmission characteristics changing means for changing the transmission characteristics of the radio transmitting means to transmission characteristics adapted to the frequency band of the signal generated by the variable frequency signal generating means changed by the band changing means.

As pointed out in the prior response, the band changing means is desirable from the standpoint of helping address difficulties which may arise with respect to establishing communication between the portable device and the on-vehicle device.

The Official Action sets forth a rejection of independent Claim 13 based on the disclosure in U.S. Patent No. 6,091,343 to Dykema et al. in view of U.S. Patent No. 6,353,776 to Röhrl et al. Dykema discloses what is referred to as a trainable RF transmitter having useful application as a vehicle-installed transmitter that is able to learn the carrier frequency, modulation scheme and data code of a RF signal. The Official Action addresses the various claimed aspects of the on-vehicle radio device recited in Claim 13 by taking the position that Dykema et al's frequency synthesis and control circuit 160 corresponds to the claimed band changing means for changing the frequency band of the signal generated by the variable frequency signal generating means according to the detection signal of the human detection means as recited in Claim 13. In this regard, the Official Action refers to step 305 in Fig. 7A of Dykema et al. and the associated description in the first full paragraph of column 11 of Dykema et al. This portion of the disclosure in Dykema et al. points out that the disclosed system includes a controller 110 that determines whether one of several switches 44, 46, 47 has been actuated, or whether any other user input signal has been received from a user interface 120. This determination is carried out in step 305 of Fig. 7A. If a switch has been actuated, the controller 110 identifies and reads data contained in a memory 118 stored at a location corresponding to the channel associated with the actuated switch. Following this, the controller 110 judges whether the trainable transmitter has been trained with respect to the selected channel. If so, a signal B1, B2 is transmitted depending upon the frequency band in which the carrier signal falls.

This disclosure in Dykema is quite different from the band changing means forming a part of the on-vehicle radio device at issue here. In one respect, the band

changing means here changes the frequency band of the signal generated by the variable frequency generating means in a situation in which the on-vehicle radio device has not yet acquired the identification information recorded in the portable radio device when the person carrying the portable radio device having the identification information recorded therein is detected by the human detection means. Claim 13 is amended to better set forth this aspect of the band changing means which is supported by the discussion beginning in paragraph [0022] of the present application.

Dykema et al. does not disclose, in combination with the other claimed features forming a part of the on-vehicle radio device, a band changing means for changing the frequency band of the signal generated by a variable frequency signal generating means in the manner set forth in Claim 13.

Röhl et al. is relied upon for its discussion in the middle portion of column 7 regarding response code signals. Even assuming Röhl et al. discloses that which the Official Action says it does, Röhl et al. does not make up for the deficiencies pointed out above with respect to the disclosure in Dykema et al. Consequently, a combination of the disclosures in Dykema et al. and Röhl et al. would not have resulted in an on-vehicle radio device having the combination of features recited in Claim 13. Claim 13 is thus allowable for at least that reason.

Claim 14 defines the on-vehicle radio device in different terms. As set forth in Claim 14, the on-vehicle radio device comprises radio wave measuring means for measuring radio wave intensity in the outer space of the on-vehicle radio device for each of predetermined frequency bands, variable frequency signal generating means for generating a variable frequency signal for the radio communication, band

changing means for changing the frequency band of a signal generated by the variable frequency signal generating means to one of the frequency bands for which the radio wave measuring means measures the lowest radio wave intensity, radio transmitting means for transmitting the signal generated by the variable frequency signal generating means to the outer space, and transmission characteristics changing means for changing the transmission characteristics of the radio transmitting means to transmission characteristics adapted to the frequency band of the signal generated by the variable frequency signal generating means changed by the band changing means.

The Official Action recognizes that Dykema et al. does not disclose band changing means for changing the frequency band of a signal generated by the variable frequency signal generating means to one of the frequency bands for which the radio wave measuring means (i.e., the radio wave measuring means that measures the radio wave intensity in outer space of the on-vehicle radio device for each of plural predetermined frequency bands) measures the lowest radio wave intensity. To address this deficiency, the Official Action points to the disclosure in King et al. It is respectfully submitted that this reliance is misplaced.

King et al. describes a remote transmitter system in which a transmitter 10 transmits an amplitude modulated signal at a plurality of different carrier frequencies. A receiver 12 is programmed to select the carrier frequency. More specifically, King et al. describes in connection with the illustration in Fig. 4 that an AM signal is transmitted at several carrier frequencies, either sequentially or simultaneously, as indicated at 90. A carrier frequency is then selected for receiving the signal, and the AM signal is received at the selected carrier frequency. Subsequently, at 96 in Fig.

4, FM noise is detected in accordance with a received signal strength indicator.

Using the decoded data stream, AM noise is detected. When the FM or AM noise becomes too much, the selected carrier frequency is changed at 100. In King et al., the FM noise and the AM noise are detected by the receiver 12 which then changes the carrier frequency when either of them becomes excessive.

However, one difference between the on-vehicle radio device at issue here and the disclosure in King et al. is that King et al. is not particularly concerned with, and does specifically describe, the manner in which the carrier frequency is changed. More specifically, King et al. does not disclose changing the frequency band of the signal generated by a variable frequency signal generating means to one of the frequency bands for which a radio wave measuring means measures the lowest radio wave intensity. In the event that language is not considered to be sufficiently clear, the wording in Claim 14 is changed to recite that the band changing means changes the frequency band of a signal generated by the variable frequency signal generating means to a frequency band in which the radio wave intensity in the outer space of the on-vehicle radio device is lowest as between the predetermined frequency bands. Thus, the radio wave measuring means measures the radio wave intensity of the on-vehicle radio device for each of plural predetermined frequency bands, and the band changing means changes the frequency band of the signal generated by the variable frequency signal generating means to a frequency band in which the radio wave intensity of the on-vehicle radio device is lowest from amongst the plural predetermined frequency bands. This is not disclosed in King et al. or any of the other applied references.

The arrangement recited in Claim 14 is advantageous from the standpoint that the on-vehicle radio device transmits a signal within a band in which the signal is less affected (least affected) by the electromagnetic wave in outer space. This thus improves the likelihood that the portable radio device will normally receive the signal transmitted by the on-vehicle radio device, and also improves the reliability of the radio communication between the on-vehicle radio device and the portable radio device.

It is respectfully submitted that the on-vehicle radio device recited in Claim 14 is patentably distinguishable over a combination of the disclosures in Dykema et al., Röhl et al. and King et al.

The dependent claims recite further distinguishing features associated with the on-vehicle device at issue here. As these dependent claims are allowable at least by virtue of their dependence from allowable independent Claims 13 and 14, a detailed discussion of the additional distinguishing features recited in the dependent claims is not set forth at this time.

Early and favorable action involving this application is respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful

in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: December 29, 2008

By:

A handwritten signature in black ink, appearing to read "Matthew L. Schneider", is written over a horizontal line.

Matthew L. Schneider
Registration No. 32814

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620